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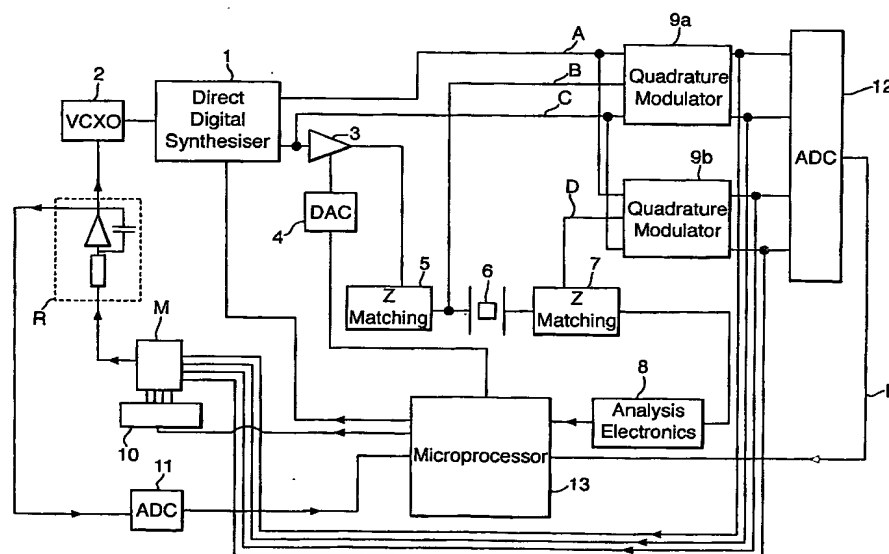
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(54) Title: CRYSTAL OSCILLATOR



(57) Abstract: An apparatus for oscillating a surface is described. The apparatus comprises an oscillator circuit having: a) a piezo-electric crystal connected to the surface; b) a variable frequency generator for generating a driving signal which is supplied to the crystal to cause the crystal to oscillate, thereby causing the surface to oscillate; and, c) an analyser for monitoring the phase shift between the voltage across the crystal and the current flowing through it and, in response generating an adjustment signal which relates to the difference between the oscillation frequency and a resonant frequency of the crystal, the variable frequency generator being responsive to the adjustment signal to vary the frequency of the driving signal to cause the crystal to oscillate at the resonant frequency.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.